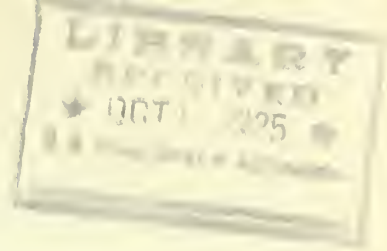


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STATE OF MAINE

COOPERATIVE WHITE PINE BLISTER RUST

CONTRC' WORK

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STATE LEADER.

STATE OF MAINE

COOPERATIVE WHITE PINE BLISTER RUST

CONTROL WORK

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Cooperative Blister Rust Control Work in Maine

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COOPERATIVE BLISTER RUST CONTROL WORK IN MAINE

The Problem

Summary of early work

The white pine blister rust (Cronartium ribicola Fischer) is a parasitic fungus disease, native to Europe which was unknowingly brought to this country about 1900. Here it was first found at Geneva, N. Y. in 1906 on cultivated black currants and in 1909 on planted white pine. A warning of its dangerous nature was issued and attempts made to eradicate the disease by systematic examination and destruction of imported white pines wherever the disease was found. This proved unsuccessful as the rust was found on native pine and Ribes (wild and cultivated current and gooseberry bushes) over a large area in western Massachusetts and southern New Hampshire in the fall of 1915.

Systematic scouting in 1916 developed the fact that blister rust was generally established in Maine and other northeastern States. An immediate conference of State and Federal officials and others interested in the forest resources of the country was held at Albany, N.Y. to consider the problem. All hope of eradicating the disease was abandoned and it was agreed that the only way to meet the situation was to undertake the development of local control measures. Accordingly, the State in 1917 began cooperative experimental control work.

During the period 1917 to 1921 inclusive, practical control measures were developed in cooperation with the U. S. Department of Agriculture, which can be applied by individual pine owners through local eradication of Ribes (Current and gooseberry bushes both wild and cultivated) within 900 feet of pine stands.

In order to produce white pine it is essential that blister rust control work become a part of the regular procedure of growing this valuable crop, but pine owners in general do not know the disease or the different kinds of wild Ribes, and are not familiar with the effective methods of their removal. Without this knowledge control can not be accomplished. It is to meet this need, and thus assure continued production of an essential timber crop that the Federal Department of Agriculture, in 1922, entered into the present cooperative 8-year blister rust control program with the State. This program is a joint project of the State and Federal governments, which has for its purpose the accomplishment of the general control of the disease through Ribes eradication by land owners in regions where white pine is an important crop, during the period 1922 to 1930. It is expected that by the end of the program the methods of applying local control, the need for continued watchfulness for the disease and the necessity of occasionally rescouting control areas for Ribes will, in general, be sufficiently well understood to enable pine owners, with such assistance as may be necessary to give them, to successfully cope with the blister rust.

Present Status

Maine's white pine is estimated at 3,000,000 acres, valued at \$50,000,000 or an average of about \$16 per acre. Out of a total wooded area of 14,000,000 acres, 2,776,000 acres are in farm woodlots. Softwoods make up 65 per cent of the total stand of 27,300 M board feet. Of this 22 per cent or 6,006 M board feet is white pine. Lumbering is one of Maine's chief industries, ranking fifth in importance, and white pine makes up 37.5 per cent of the total lumber cut in the State.

Infection Conditions

In 1919 infected pines were located in over seventy townships. In 1920, a survey of 38 1/2 miles of rod-wide strip lines showed 6 per cent of the pine infected. At the present time dead, dying or diseased white pine, caused by blister rust, may be seen in every white pine town in southern Maine. Sample plots show that infection runs as high as 81%. In uneradicated areas the momentum of the disease is constantly increasing and causing a corresponding increase in the amount of pine infection each year. On the other hand the eradication of Ribes on 1,113,638 acres of land has protected from further damage at least 742,425 acres of pine (allowance for protective strip made by deducting 1/3 of total eradicated acreage) worth at an average of \$16 per acre \$11,284,860 (5% deducted for loss resulting from infection which had taken place up to the time of Ribes eradication). The total cost of the control work has been about \$103,000. At this rate (less than 10 cents per acre) the cost of protecting Maine's 3,000,000 acres of pine would amount to \$300,000.00 or considerably less than two-thirds of one per cent of its estimated value. Re-eradication will be necessary in some areas where Ribes were originally abundant, but the cost of this work will be much less than that of the initial eradication.

State and Federal cooperative funds used (1917 to 1921 inclusive) on experimental demonstration control areas in developing effective and cheap methods of finding and destroying Ribes and in ascertaining if they could be thoroughly enough removed to prevent commercial damage to pine, resulted in the eradication of these bushes on 185,750 acres and the reduction of average per acre costs from \$1.06 to six cents. Under the cooperative 8-year control program 190,209 acres were eradicated of Ribes in 1922 and 336,452 acres in 1923, and 401,227 in 1924, or a total of 927,888 acres. This is nearly five times the total area eradicated prior to 1922.

Control Program

In all, 1,113,638 acres which includes the protective strip around pine stands, have been eradicated of Ribes or a little more than one-third of the State's estimated 3,000,000 acres of white pine. There are left 1,886,362 acres to be protected in the remaining 5 years of the cooperative 8-year control program. This means that 377,272 acres plus the protective strip around pine stands must be eradicated of Ribes each year. In addition, a re-survey of control areas eradicated in earlier years was started in 1924 to determine the need, the time and methods of the second Ribes eradication. While a re-survey system will be carried out by the State during the next five years of the control program, the actual Ribes eradication where

necessary will be done by the pine owner. During the next five years about 1,000,000 acres or approximately 200,000 acres a year will be re-examined and the owners advised to eradicate Ribes for the second time where necessary.

The Policy

White Pine Policy

White pine is by all odds the most important forest tree in southern Maine. It covers a large area, is used for more purposes and brings a larger return than any other forest resource in that part of the State. Its management as a permanent crop, both on farm woodlots and wild lands is essential to maintain the prosperity of the region. Every effort will be made to emphasize the importance of white pine in the agricultural and industrial life of the State and to encourage its protection, better management and increased production. Planting of white pine will be encouraged in the southern half of the State and forestry endeavor directed toward building up the white pine forests on the basis of a sustained yield.

Blister Rust Control Policy

The cooperative 3-year control program has been undertaken in an endeavor to secure the application of control measures to the entire area in which white pine is of primary commercial importance. No attempt will be made to secure the general control of the rust in the non-commercial pine regions of the State because of the scarcity of white pine, abundance of Ribes, and prohibitive cost of control work under such conditions. However, pine owners in these sections of the State will be warned of the danger from blister rust and so far as possible, given advice and assistance in applying control measures upon request. The State will cooperate with the U. S. Department of Agriculture, State Extension Service, towns, associations and individuals in control work. Control areas will be proclaimed within which all Ribes must be eradicated and their further growth or cultivation abandoned. The eradication of Ribes must be done by the pine owners or at their expense. Such work will be properly checked by the State to guarantee effective work. The Ribes factor remaining on each control area after the initial eradication will be determined by a suitable check and recorded as a basis for deciding when the second eradication of Ribes will be necessary. Such follow-up control work will be done so far as practicable during the cooperative 3-year program.

Cultivated Ribes Policy

The cultivated black currant is considered a public nuisance. Fruiting currant districts are desirable in non-pine producing sections of the State. Cultivated Ribes will be eradicated in control areas and their further planting prohibited. Control areas will be officially designated as such and their boundaries definitely established. The same policy will apply to fruiting currant districts. The standard width of the Ribes free protective zone surrounding control areas will be 900 feet. This protective strip may be reduced in width to 600 feet at the specific direction of the Forest Commissioner if local conditions warrant such a reduction, but the standard width (900 ft). will be used generally.

The Organization

Cooperation

Cooperative blister rust control work combines educational, service and regulatory activities which are effectively coordinated into one working unit. The work is conducted under a formal agreement between the State Forest Service, the State Extension Service and the United States Department of Agriculture (Bureau of Plant Industry and Office of Cooperative Extension Work).

The United States Department of Agriculture through its Bureau of Plant Industry discharges its responsibilities under the cooperative agreement by providing county or district blister rust control agents to give pine owners the necessary expert advice, leadership and supervision needed to secure immediate and effective local eradication of Ribes in pine growing regions. It is responsible for the proficiency of these agents in all subject matter and technical information essential to the conduct of their work and in addition gives such assistance as is practicable in the further improvement of control practices through experimentation and demonstration.

The State Forest Service is responsible for the administrative direction of the cooperative blister rust control work within the State, for the enforcement of State blister rust laws and for furnishing trained personnel to supervise cooperative Ribes eradication work so as to guarantee effective removal of the bushes. Through the State Forest Service, land owners individually and by town appropriation provide labor for the eradication of Ribes on their properties.

The State Extension Service cooperates in the prosecution of the blister rust control work whenever practicable by making available such facilities of its organization as will promote the prompt and effective carrying out of the control program. The county agricultural agents invite the blister rust control agents to participate in the county extension programs to such extent as is feasible and most helpful in accomplishing control of the blister rust.

This arrangement has resulted each year in bringing forth an increased volume of control work within the State and with it a constantly growing desire among pine owners to protect the white pine crops on their lands.

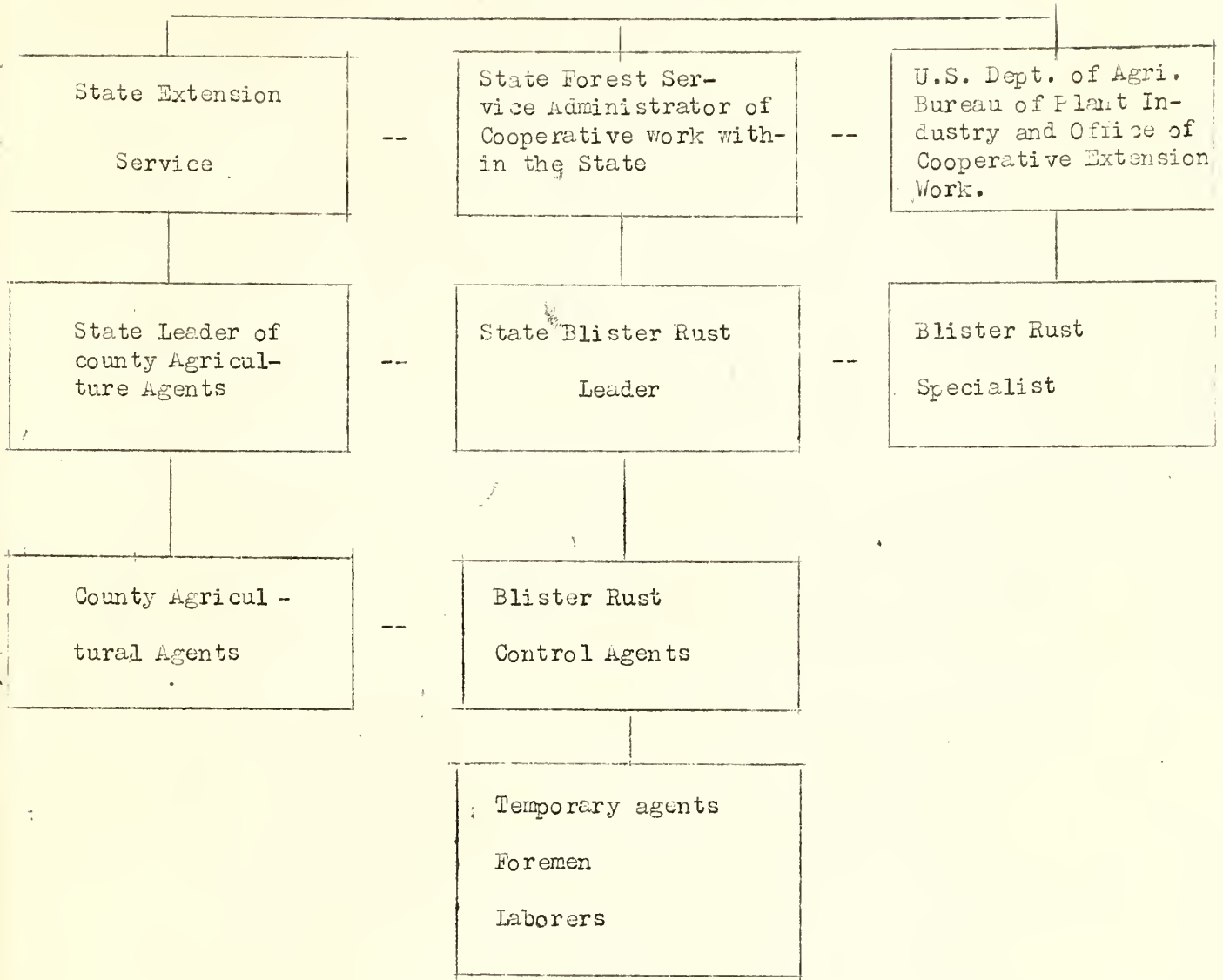
Personnel

The Forest Commissioner is the nominal head of the cooperative blister rust control work within the State. His chief assistant in the blister rust control work is the state blister rust leader.

The State Leader is employed and technically trained by the Bureau of Plant Industry and while administratively responsible to the Forest Commissioner, he also represents the other parties to the cooperative agreement. He coordinates the efforts of all into an effective working unit for the prosecution of the cooperative control program as the Forest Commissioner may direct under the provisions of the cooperative agreement. The State Leader is responsible for carrying out the state blister rust policy and

Diagram of Organization

Cooperative Agreement



Direct Authority

Working in harmony

program of work. He plans, organizes, initiates, supervises, and summarizes the results of the cooperative blister rust control work.

The blister rust control agents assist the state leader. They are employed and trained by the Bureau of Plant Industry and located in each white pine county or district within the State. Each blister rust control agent is responsible to the state leader for carrying out the cooperative control program in his district. He is the local leader charged with securing the general application of control measures by pine owners in his district in a manner that will result in clearing definite areas of Ribes each year. This includes the development of a plan of work in cooperation with the State Leader, the obtaining of local cooperation in control work, the organization and supervision of field work, the systematizing of the activities under his supervision and the preparation of reports on the progress of the work in his district. In 1925 an agent is assigned to each of the following districts: Cumberland County, Oxford County, York County and Androscoggin and Sagadahoc (Twin) Counties.

Temporary agents are employed during the field season to assist the blister rust control agents in preliminary control reconnaissance (eliminating Ribes-free areas and marking Ribes areas for eradication work), interviewing pine owners and supervising and checking cooperative Ribes eradication. They work under the direction of the blister rust control agents to whom they are responsible.

The foremen are employed on cooperative town funds and trained by the State. These men are responsible to the blister rust control agent in whose district they are working. They direct and check the Ribes eradication work of the laborers who are supplied by pine owners. The foremen are held responsible for the efficiency of the laborers (eradication crews) who work under their supervision.

In addition to the State Leader and blister rust control agents the Bureau of Plant Industry employs a Blister Rust Specialist for work in Maine and New Hampshire. He is administratively responsible to the Bureau of Plant Industry and works in harmony with the blister rust plans and organization of the state leader. The blister rust specialist assists the state leader and blister rust agents with their problems, studies the cooperative control work in all parts of his territory and aims to stimulate it by finding the weaker phases in poorly or newly organized districts and by devising means whereby the State Leader may make adjustments for improving the work. In general the specialist's job is that of strengthening the weak spots in the state's cooperative blister rust control work, especially the educational features, to bring the work to the highest possible level of efficiency.

The Plan of Work

The cooperative 8-year blister rust control program in Maine is conducted in accordance with the following plan of work. This plan was drawn up to meet Maine's field conditions and secure the greatest amount of local cooperative Ribes eradication by pine owners that is possible with the means at our disposal during each year of the control program.

Location

The principal commercial and potential white pine area of Maine is restricted to the southern third of the State. This region is at present divided into four districts, namely, York County, Cumberland County, Oxford County and Androscoggin and Sagadahoc Counties. The township is used as the dividing unit in the district, and within the town, the block or control area. The latter is usually bounded by roads, rivers, brooks or other permanent or natural features.

Education

General information on the control of blister rust is made available to the public by the state leader and blister rust control agents through the press, local meetings, publications, posters, motion pictures, lectures, exhibits, etc., to arouse the interest in combatting this disease, particularly among pine owners. The desire of land owners and others to protect their white pine by the eradication of Ribes within 900 feet of the trees is then obtained through local demonstrations of pine damage and control measures. This is followed by the systematic interviewing of pine owners to secure their active cooperation in eradicating Ribes upon their land.

Local Cooperation

Under the State blister rust law, the forest commissioner issues proclamations setting aside definite control areas, from which all wild and cultivated Ribes must be removed by the land owners within a specified time. If this is not done, then the forest commissioner may cause the bushes to be eradicated, charging the cost of the work to the town and collecting payment as a state tax. In all cases the land owner is responsible for the eradication of Ribes on his property and must bear the cost of the work either individually or collectively through town appropriations. The state cooperates with towns, associations and individuals by furnishing trained men to examine the owner's land for Ribes, arrange for their eradication and supervise and check the control work on their properties. If the owner prefers, the state will furnish a trained crew to do the work and charge the actual cost to the owner. Non-resident owners are treated the same as resident owners. They are written to, the disease and its control explained to them, and their cooperation in the eradication of Ribes on their land requested.

Ribes eradication

Under the direction of the blister rust control agents the temporary agents will examine the pine owner's land for Ribes. If the land is free of Ribes or contains so few that they can be uprooted without loss of time,

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the agent pulls them and advises the owner of the Ribes conditions found on his property. If Ribes are more plentiful, the agent demonstrates these conditions to the owner and arranges for him to eradicate the bushes himself or to hire laborers (crew) to do the work. The work is done under the direction of a trained foreman to guarantee the efficient removal of the bushes. If towns appropriate funds for cooperative control work, the money is used to pay the wages of trained foreman who assist the pine owners within the town to eradicate Ribes on their land and on town-owned pine land. After the control work is done the owner is advised to keep on the lookout for Ribes and pull up any he finds. A re-examination of the area is made after a sufficient period of time has elapsed to allow for Ribes regrowth and the owner advised when re-eradication will be necessary.

Checking Ribes Eradication

Every piece of Ribes eradication work is checked by the men doing the work and by the foreman. It is also checked by the agent before it is approved. If the checks show the work is poor, it must be done over again by the responsible party. Checks by the crew and by the foreman usually catch up poor work immediately, so that the area can be reworked without delay. Upon completion of the work on each control area, a systematic administrative check is made by the State Leader or his representative. This is a single strip check across the control area to get the number of Ribes and feet of leaf-bearing stem left per acre. This Ribes factor enables the State Leader to determine when re-eradication will be necessary and the method to be used in doing the work.

Records

A daily record of the work performed is kept by each employee, except laborers, whose work is recorded by the crew foremen. These are summarized monthly on prescribed forms and copies furnished the cooperating parties. They not only serve as a record of accomplishments, but enable the work of each employee to be analyzed, corrected and strengthened where necessary. At the end of the year they form the basis for an annual report. Towns that appropriate funds for cooperative control work are furnished a detailed report, showing the manner in which the town funds were expended and the results accomplished. A map is kept by each agent on which is located the control areas, pine areas, eradicated areas, etc., in his district.

Current Working Plan

The current working plan outlines in detail the work to be done each year by the State Leader and his assistants. It includes a statement of the activities to be undertaken, schedule of work for the state leader, blister rust control agents, etc., and a budget. This plan is developed by the State Leader in cooperation with his assistants and approved by the Forest Commissioner. Each year the plan is revised to meet the new or changing budget and field problems of the cooperative control work.

June 25, 1925.

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